

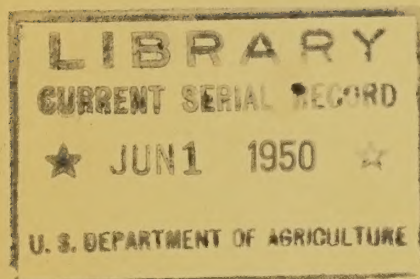
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# CO-OP ELECTRIFICATION ADVISER TRAINING OUTLINE

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## PHOTOGRAPHY AND MOTION PICTURES



**REA**

RURAL ELECTRIFICATION ADMINISTRATION

U.S. DEPT. OF AGRICULTURE



# PURPOSES OF THIS OUTLINE

This is one of a series of outlines prepared by REA as an aid in planning and arranging training schools for co-op electrification advisers. Each outline deals with a power use subject or with some aspect of cooperative principles and practice or with a particular method or technique of getting information to people. These are the three principal fields in which electrification advisers need to be skilled. Each booklet contains both suggested subject matter and suggestions as to how the material might be presented, with an indicator of a suitable time schedule. The booklet is

thus useful as a guide to committees in charge of training schools, as an aid to the instructors, and as a subject matter manual that may be distributed to participants at the close of a training session for study and future reference. Subjects available or in preparation are listed below by title and number. It is suggested that committees planning such training schools keep in mind the need of training in all three types of subject matter and, insofar as practicable, make use of the outlines in a balanced combination.

## LIST OF SUBJECTS

An ORIENTATION OUTLINE (unnumbered) covers all three fields of information. It is to provide the subject matter for an initial school that will give co-op officials basic background information and an understanding of the nature and scope of the educational job to be done.

NO.	POWER USE SUBJECT	NO.	CO-OP SUBJECT	NO.	METHOD OR TECHNIQUE
1	Farm and home Wiring	100	Value of Co-op	200	Getting News to Members
2	Farm Motors		Membership		(Newsletters and State
3	Water Systems and	101	Integrating Power		Paper Columns)
	Plumbing		Use and Co-op	201	Using the Radio
4	Electric Ranges		Education	202	Co-op Reports and Non-
5	Laundry Equipment	102	The REA Program		periodical Publications
6	Poultry Production		and Co-ops	203	Making Effective Talks
7	Refrigerators, Home	103	The Electric Co-op	204	Demonstration Techniques
	Freezers, Walk-Ins		— What it Is	205	Methods and Results of
8	Small Appliances	104	The Co-op Movement		Adult Education
9	Dairying		— Here and Abroad		
10	Pig Brooding	105	Co-op Bylaws	206	Effective Meetings
11	Farm, Home and	106	Establishing Member		
	School Lighting		Ownership	207	Photography and Motion
12	Farm Shop	107	Assuring Member		Pictures
13	Pump Irrigation		Participation	208	Working with Newspapers
14	Garden Watering	108	Co-op Tax Status	209	Exhibits and displays
15	Electric Hotbeds	109	Annual Meetings	210	Working with Rural Youth
16	Elevating, cleaning	110	Co-op's Place in	211	Working with Community
	and grading farm crops		the Community		Organizations
17	Drying grain, hay, peanuts, etc	111	Cooperation Between Co-ops		
18	Heating, cooling, ventilating				
19	Cleaners, dish washers				
20	Kitchen planning				



UNITED STATES DEPARTMENT OF AGRICULTURE  
Rural Electrification Administration  
Washington 25, D. C.

Suggested Program and Procedure

PHOTOGRAPHY AND MOTION PICTURES

How to take them and use them  
for their greatest advantage.

Suggested Procedure: Good pictures are invaluable to the success of a co-op's educational program. They should be used wherever possible because they help get a point across simply, with the greatest speed and dramatic force. Pictures should be used freely, in newsletters, State papers, local papers, in co-op offices, at staff training sessions, at fairs, and at all member and community meetings. There is no method for telling the co-op's story, except radio (and television is here!) that pictures cannot help.

The following outline shows how a day and a half training session can be conducted to help electrification advisers learn how to take pictures or improve their techniques. In addition, this session should give them the information they need in order to prepare pictures for their greatest appeal either in publications or display.

Since this is a highly specialized technical program, the leader must be a person experienced in all phases of photography...not only the taking of pictures, but also the preparation of pictures for use. The group leader should also be a person who has a general knowledge of REA co-ops and their aims. The editor of a State co-op paper or a local newspaperman would be a good choice. A commercial photographer is a possibility if he is familiar with electric co-ops and their problems. It would be a great help to have as assistants a manager or an electrification adviser who has been taking and using pictures for some years. If you cannot locate a suitable group leader locally, REA may be able to furnish an experienced person.

A subject matter outline covering the topics in considerable detail follows this program outline. At the close of the meeting, the subject matter outline may be distributed to participants for reference and further study. Extra copies can be provided for this purpose.

Preparation: For maximum effectiveness, the room used for this session should be well lighted and have at least one electrical outlet on each wall. The following will be helpful to the group leader:

1. Set of photographic equipment.



Suggested Program and Procedure (Cont.)

- a. 35 mm camera with all accessories.
  - b. A press-type camera with all accessories.
  - c. A 16 mm motion picture camera with all accessories, projector, and screen.
  - d. A light meter.
  - e. A tripod with pan and tilting head.
  - f. Photo floodlight stand.
  - g. A 35 mm slide projector and at least 12 colored slides and black and white of subjects valuable to a co-op's educational program.
2. A set of photographic posters illustrating good and bad picture technique.
    - a. A poster illustrating the value of one good picture as contrasted to a page of solid type.
    - b. Photographic grain.
    - c. Good composition.
    - d. Good and bad contrast in photographs.
    - e. The value of "depth of field" in a photograph.
    - f. Good cropping of a photograph.
    - g. The value of silhouetting a photograph.
    - h. The value of the figure in a composition.
    - i. Picture characteristics which determine maximum reduction when reproduced.
3. An exhibit of good photography in the field of rural electrification.
  4. A complete set of photo supply manufacturers' catalogs. If possible, copies should be supplied for all participants.

Suggested Program and Procedure (Cont.)

5. Arrangements with a local photographic processor to develop and print the pictures taken during each "workshop" session so they will be available the next morning for inspection and discussion.
6. Arrangements with a co-op member for the entire group to take pictures of his farm and home during one afternoon. (Of course, a farm using electricity abundantly and wisely is preferred.)

(Note: The above posters and photographs are available from REA. Address all requests to:

U. S. Department of Agriculture  
Rural Electrification Administration  
Information Services Division  
Washington 25, D. C.

allowing one month for filling the order. In requesting this material, furnish the following information: time and place of meeting, address for shipment, and date of return to REA.)

Participants should be asked to bring the following equipment and materials to the meeting if they have them available:

- a. Camera, film, and other equipment.
- b. Examples of their photographic work.
- c. Copies of their newsletters.
- d. Copies of their Statewide newspaper stories.
- e. Copies of their co-op stories in their local papers.
- f. Any other examples they have of the use of photographs in building a successful co-op education program.



Suggested Program and Procedure (Cont.)

PHOTOGRAPHY AND MOTION PICTURES

First Day

Morning Session

<u>Time</u>	<u>Topic I. "Pictures &amp; Photographic Equipment"</u>	<u>Speaker or Leader</u>
9:00	Introduction and explanation of session's procedure.	Chairman (Co-op official)
9:15	A. <u>Talk:</u> "The Value of Good Pictures in Building an Effective Co-op Education Program."	Program Leader (Photographic specialist)
	Suggest that this talk be brief. By using poster "A", (contrasting one picture with a solid page of type, the point can be made quickly that a picture can help tell a story fast, with human appeal and dramatic impact.	
9:20	B. <u>Question Period:</u> "Photographic Equipment Most Valuable to the Co-ops."	Program Leader or reliable photo supply dealer, if available.
	Group leader discusses photographic equipment, advantages and disadvantages of each type relating these specifically to the needs of the co-op. This talk should cover cameras, film, and photographic accessories. (Poster "B" will be useful in describing "grain" when talking about film.) As soon as possible, the speaker asks for questions from the audience on their equipment problems. Whenever possible, the questions should be answered by demonstration.	
10:20	Intermission	
	<u>Topic II.</u>	
10:30	<u>Talk:</u> "What Makes a Good Picture."	Program Leader and/or Statewide Editor
	All this talk about equipment is fine, but a good photographer can get excellent pictures with a box Brownie...Why? Because, first -- the subject is doing something interesting, and second -- the picture clearly illustrates what the subject is doing. Which brings us to the one	



Suggested Program and Procedure (Cont.)

Morning Session

<u>Time</u>	<u>Topic II (Cont.)</u>	<u>Speaker or Leader</u>
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essential in making a picture interesting... good composition. Composition cannot be talked about. It must be demonstrated. It is strongly advised that the speaker use poster "C" and the display photographs to illustrate the elements of good composition. A brisk discussion will help participants understand the most important elements of composition.

10:45	<u>Topic III.</u> Workshop, "Portraits and Group Pictures."	Program Leader
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This is the opportunity to stop talking and start learning by doing. Break the group up into small units of four to six persons. Push back all the chairs in the room. Each of the units selects an indoor picture problem typical of the type met with at the average co-op. The unit poses the subject or subjects, arranges the lighting, and takes the picture. Wherever possible, equipment brought by the audience should be used. Equipment brought by the group leader will have to fill in wherever necessary. The leader will be kept busy circulating around, answering questions and improving the posing, choice of background or lighting.

Afternoon Session

After lunch the group leader explains the workshop procedure planned for the rest of the afternoon, -- describes the farm the group is going to work on, the way the pictures taken are to be processed and handled for the following day's session.

1:00	<u>Topic IV.</u> Workshop, "Taking Pictures on a Co-op Member's Farm."	Program Leader
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This session should provide the entire group with the opportunity to take many different types of pictures that would be valuable in the co-op's education program. Among the subjects that will be available are:

1. Pictures of co-op's line and facilities.
2. Outdoor pictures around the farm.
3. Uses of electricity in the farm home.

Suggested Program and Procedure (Cont.)

Afternoon Session

<u>Time</u>	<u>Topic IV (Cont.)</u>	<u>Speaker or Leader</u>
	4. Uses of electricity on the farm (in the barn, the milk house, chicken house, watering troughs, etc.)	
	5. Good and bad wiring.	
	6. Good and bad plumbing.	
	7. Human interest (children studying, playing with animals; grownups listening to radio, etc.)	
	8. Active membership (making out self-billing card, reading meter, reading newsletter, State paper, etc.)	

This is just a partial list; a great many other picture possibilities will present themselves. Even night lighting would be possible if the member is willing to allow the group to return later in the evening or at dusk.

It might be less confusing not to break up into small units during this workshop session, but to cover each assignment as a group, allowing a few persons to take pictures of each subject. Thus the subject's patience won't be too severely tried, and the entire group can learn from each assignment.

Second Day

Morning Session

9:00	<u>Topic V.</u> "Qualities Most Necessary in Pictures That Are to be Used in Publications."	Program Leader
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Distribution of the prints made from the pictures taken the day before. (Before distribution, leader should make note of those pictures which will best illustrate good or bad handling since they will be used later in the morning as examples.) This also offers an excellent opportunity for the group leader to discuss the proper way to handle and store film negatives.



Suggested Program and Procedure (Cont.)

Morning Session

<u>Time</u>	<u>Topic V (Cont.)</u>	<u>Speaker or Leader</u>
9:15	A. <u>Group Discussion:</u> "Choice of Pictures"  It is time now to take out examples of the groups' newsletters and State paper, and discuss the reasons why some pictures reproduce well while others come out as blobs on the page. Posters "D" and "E" will be helpful in illustrating these.  This is the chance to bring out some of the pictures taken the day before which illustrate good and bad points. Above all, this is an excellent opportunity to illustrate by practical application, the reasons behind the suggested improvements.	Program Leader and/or visiting speaker (Newspaper editor or Extension editor, for example)
9:45	B. <u>Talk:</u> "How to Submit Pictures for Publication."  In addition to a good picture, an editor needs information about the picture subject. He must have names and information slanted toward the interests of his readers. This is a good chance to answer those questions about "how big should the pictures be?" and "should they be glossy prints?" and "should they be retouched?" The audience won't need much prodding to start these questions.	Local editor or Program Leader
10:00	<u>Topic VI.</u>  <u>Demonstration:</u> "How to Prepare Pictures for Publication and Display."  The preceding discussion should lead logically into a demonstration of ways to prepare pictures for publication so that they reproduce to their fullest advantage. Posters "F" and "G" will be helpful here. Particular attention should be placed on the value of good cropping.	Program Leader or State editor
10:10	Intermission	



Suggested Program and Procedure (Cont.)

Morning Session

<u>Time</u>	<u>Topic VI (Cont.)</u>	<u>Speaker or Leader</u>
10:15	A & B. Workshop, "Preparation of Pictures for Publication and Display."  This period should be devoted entirely to working on pictures....cropping, silhouetting, retouching, framing, etc....Posters "F" and "G" again will be useful as examples, as will many of the pictures that have been displayed around the room.	
11:15	<u>Topic VII.</u>  <u>Talk and Discussion:</u> "Slides and Slide Projectors."  Slides can be valuable as a training aid... either for the membership or staff. A discussion of the equipment needed, costs, and limitations of the media will lead to the desired questions from the group.	Program Leader or demonstration specialist (such as county agent or home agent)
11:30	<u>Topic VIII.</u>  <u>Talk and Discussion:</u> "Motion Pictures"  A discussion of the effect good movies have on an audience. This should lead into a discussion of equipment and costs of "home" movies.	Program Leader or Extension movie specialist.
11:45	<u>Topic IX.</u>  <u>Talk:</u> "A Workable Photographic Filing System."  "I wonder what I did with that Ma Gillicudy picture?" -- That's the theme song, without an organized plan to take care of negatives and prints.  A good simple filing system is essential to getting maximum use out of the pictures taken and received.	Program Leader



Suggested Program and Procedure (Cont.)

Morning Session

<u>Time</u>	<u>Topic IX (Cont.)</u>	<u>Speaker or Leader</u>
12:00	<u>Talk and Discussion:</u>	Chairman

Summary and Conclusion.

A good way to wind up this session is to distribute the subject matter outline prepared in advance and discuss briefly how it can be used. It would be wise if time permits, to point out the list of sources for information on photographic techniques and equipment. This is the last item in the outline.

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END OF PROGRAM. SUGGESTED SUBJECT MATTER FOLLOWS.



Suggested Subject Matter

PHOTOGRAPHY AND MOTION PICTURES

The following specific subject matter suggestions are intended to aid chairmen, discussion leaders, and speakers in preparing their material for the program as outlined in the preceding pages.

Topic I. Pictures and Photographic Equipment.

- A. The Value of Good Pictures -- Photographs are an invaluable aid to the co-op in developing a vigorous member and community education program. Every method for telling the co-op's story is helped by pictures. They should be used not only to identify a subject, but also to illustrate, dramatize, and frequently prove a point. The investment in equipment and time is small when compared to the good pictures can do in vitalizing a co-op's entire education program.
- B. Photographic Equipment Most Valuable to the Co-ops
  1. Features Desirable in Any Camera.
    - a. Lens should be "coated" and at least of f5.6 speed.
    - b. Lens should be coupled to a range finder. The range finder should work so that when it is set for a distance, the lens automatically becomes set for the same distance.
    - c. Shutter should be capable of giving speeds from 1 second to 1/200 second in addition to Time or Bulb.
    - d. Shutter should be equipped with a built-in flash synchronizer.
    - e. The camera must use STANDARD SIZE film.
    - f. Camera must be designed so that the interior is easily accessible for cleaning.
    - g. Loading and unloading of film must be simple and positive in action.
    - h. Camera should be sturdy enough to take fairly rough treatment.
    - i. Camera should be heavy enough so that the hand will be steadied when holding it.



Suggested Subject Matter (Cont.)

2. Miniature Camera (negative size 1" x 1 1/2")

a. Advantages.

- (1) Best for color work.
- (2) Wide range of film available practically anywhere.
- (3) Very inexpensive to operate.
- (4) Compact, easy to carry around.
- (5) Especially adapted to taking pictures of an informal nature quickly.
- (6) Well adapted to flash photography.
- (7) Very fast lenses available (frequently with the feature of interchangeable lenses).
- (8) Greater depth of field on the lens. This results in more of the picture being in focus.

b. Disadvantages.

- (1) Film size is so small that very great care must be exercised in development. This is so important in black and white work that it is advisable to check on whether fine grain development is available in your community before purchasing the camera. This is of no importance if the camera is to be used for color work primarily.
- (2) Camera must be so well constructed and accurately assembled that cost is comparatively high.
- (3) A person who must wear glasses will find the range finder and viewing window difficult to use.
- (4) Many adjustments valued by advanced workers (such as the rising and lowering bed, side adjustment, close-up bed arrangement) are not available except in the most expensive models.

3. The Reflex Type of Camera

a. Advantages.



Suggested Subject Matter (Cont.)

- (1) Image is in view in the ground glass before, during, and after taking the picture, a good feature for persons who must wear glasses.
- (2) Wide variety of inexpensive film available practically anywhere.
- (3) Most cameras of this type equipped with a special adapting arrangement that allows use of 35 mm film.
- (4) Negatives large enough to make good enlargements without special development.
- (5) Camera is easy to learn how to handle.

b. Disadvantages.

- (1) Camera cannot be focused and film exposed as quickly as with "window" type viewer.
- (2) Images are difficult to see in ground glass when light is poor.
- (3) Picture format is square. Generally the most pleasant size for a photograph is in the 4 x 5 proportion.
- (4) Has no provision for adjustments such as the rising and falling bed, close-up focussing, interchangeable lenses, tilting front, etc.

c. Special features desirable in a reflex type camera.

- (1) Viewing lens coupled with taking lens so that it acts as the range finder.

4. Roll Film Cameras.

a. Advantages.

- (1) Film most widely obtainable.
- (2) Least expensive type of camera.
- (3) Camera most persons familiar with.
- (4) Simplest camera to operate.

Suggested Subject Matter (Cont.)

b. Disadvantages.

- (1) Color film of good quality not available.
- (2) Does not have the speed of action of the miniature camera nor the versatility of the press-type camera.
- (3) Coupled range finder not generally available.
- (4) Built-in flash synchronizer not generally available.

5. "Press-type" Cameras. (These use film pack or cut film instead of roll film)

a. Advantages.

- (1) Widest variety of film made for this type.
- (2) Size of negative best for enlargement.
- (3) Each piece of film can be individually developed.
- (4) Equipped with the greatest number of adjustments so that it is capable of doing the widest variety of work.
- (5) Strongest type of camera, will take the greatest abuse, and will give the longest life.
- (6) Can use ground glass or coupled range finder, whichever is most convenient.
- (7) Can be used for copying work.

b. Disadvantages.

- (1) Needs the greatest skill to operate.
- (2) Comparatively heavy and bulky.
- (3) Can be most costly camera.
- (4) Film is most costly, and most difficult to obtain.
- (5) Size of film makes it difficult to adapt color film for projection use.



Suggested Subject Matter (Cont.)

6. Accessories Most Valuable in Taking Pictures.

- a. Light Meter (Photo-electric cell type).
- b. Tripod...Must be extremely sturdy and rigid. It should be equipped with a panning and tilting head.
- c. Camera Case...It must be sturdy and capable of carrying the camera, light meter, flash synchronizer, filters, film, and at least a dozen flash bulbs.
- d. Flash gun and two extension reflectors. One of these reflectors should accommodate the miniature type flash bulb. A desirable feature is to have all reflectors interchangeable.
- e. Filters...The most practical filter is type made of solid glass with a metal rim. These are the filters you will find greatest use for: MEDIUM YELLOW (for pleasing clouds), RED (for dramatic clouds and silhouettes), KODACHROME HAZE FILTER (for use when taking landscapes on Kodachrome film), WRATTEN FILTER #85 (when using INDOOR artificial light Kodachrome outdoors under natural light.)
- f. Lens Shade...Should be the type that will accommodate filters without removal from lens.

7. Photographic Film.

- a. The most widely used film are of four types. These are their most important characteristics:
  - (1) Panchromatic Film: Recommended for most uses since it is sensitive to the greatest range of color.
  - (2) Orthochromatic Film: Sensitive to ultraviolet, green, and blue. Particularly effective in taking pictures of elderly people or very young infants.
  - (3) Infrared Film: Sensitive only to blue-violet and the invisible infrared region. To the average co-op worker, this film has value only in photographing highly dramatic landscapes.
  - (4) Color Film: More or less sensitive to the entire visible spectrum.
- b. All film can be classified according to these properties:
  - (1) Speed (sensitivity to light)

Suggested Subject Matter (Cont.)

- (2) Contrast (ability to reproduce in black and white, the colors found in nature.)
- (3) Grain (Distribution of the black particles that make up the image.)

In choosing a film for general use, all three of these properties must be considered.

c. There is no "ideal" film, but in making the choice certain "ifs" must be considered:

- (1) If the films are going to be developed by the average commercial company, a fine grained film is important.
- (2) If pictures three or more times the size of the negatives are going to be made, fine grain film is essential.
- (3) If pictures are going to be made under very bad lighting conditions, a very fast film is called for.
- (4) If pictures are going to be made of large crowds, a very fast film will be needed since it will allow you to close down the lens and get pictures that are sharp from the front of the picture to the very back.
- (5) If the pictures are going to be mainly of older people or infants, use orthochromatic film since it will render flesh tones more pleasingly.
- (6) If a 35 mm camera is being used, fine-grain film is essential since all pictures will have to be enlarged to be of any use.

d. The following list of film is not complete, but it includes all the types found to be most valuable by the average co-op worker.

- (1) Fine-grained, moderate contrast, slow speed (Weston 25 outdoor).

Recommended for use particularly in 35 mm cameras.

- (a) Panatomic X.
- (b) Finopan.
- (c) Micropan.



Suggested Subject Matter (Cont.)

- (2) Medium grain, moderate contrast, medium speed (Weston 50 outdoor).

Recommended for general use in roll film and film packs.

- (a) Super Pan Supreme (Recommended for 35 mm use when fine-grain development is available.)
- (b) Plus X.
- (c) Verichrome.

- (3) Coarse-grained, moderate contrast, fast speed (Weston 100 outdoor).

Recommended where careful fine-grain development is available, or where negatives will not be enlarged more than 3 diameters.

- (a) Super Pan Press.
- (b) Super XX (Weston 80 outdoor).
- (c) Ultra Speed Pan.
- (d) Super Ortho Press.

- (4) Color Film.

- (a) Kodachrome.
- (b) Ansco Color.

(Note: It is recommended that INDOOR color film be used for all work since it gives better color reproduction and is more stable. It can be used for outdoor work with a compensating filter and still have the speed (Weston 8) of outdoor film. Send all Kodak film to the Rochester plant for processing since they do a consistently better job than the branch offices.)

CARE OF FILM. Store all film in a DRY, COOL, and DARK space. Process all film as soon as possible since the image deteriorates rapidly after exposure.

## Suggested Subject Matter (Cont.)

### Topic II. What Makes a Good Picture.

The physical arrangement of a picture is called its composition. Most people don't think about composition when they first start taking pictures, and that's why so many of their pictures just don't come off. There is nothing "arty" about composition. It is the working tool with which the photographer leads the eye into seeing the story the picture is trying to tell.

These are a few basic ways of arranging a picture so that the eye will quickly "see" the story you are trying to tell:

- a. Tell only one story at a time.
- b. Place the subject against an uncluttered background. If you can't choose the background, at least throw it out of focus by using a large lens opening and getting as close as possible to the subject.
- c. The subject should either be the largest or the smallest element in the picture. If it is the smallest it must be extremely sharp and either the brightest or the darkest.
- d. The subject should be either the brightest or the darkest element in the picture.
- e. If the main shapes or lines in your picture are horizontal, the picture will give the feeling of rest, quiet, and peace.
- f. If the main shapes or lines in your picture are vertical, the picture will give the feeling of impressiveness and uplift.
- g. If the main shapes or lines in your picture are diagonal or slanting, the picture will give the feeling of action. (If there are too many different angles, the feeling will be that of violent action or confusion.)

One important thing, learn how to use these basic rules to help you get good pictures all the time. But after you get familiar with them and know what they can do, don't hesitate to break them in order to get forceful, bold, and different pictures.

### Topic III. Portraits and Group Pictures.

#### A. Some Hints on Using Your Camera and Equipment.

1. Thoroughly familiarize yourself with the camera and the way it works. Load film a few times until you get the "feel" of it. Find out what position is most comfortable for you to take pictures in.



Suggested Subject Matter (Cont.)

2. Use one type of film until you know what it can do under varying conditions. A medium speed Panchromatic film is best for most pictures you will be taking. The two films most commonly used are Ansco Supreme and Eastman Plus X.
3. Use Orthochromatic film when you are taking pictures of babies and older people. This type of film gives a more pleasing rendering of flesh tones.
4. Always try to use the 1/100 second speed in taking pictures. If you have to shoot slower than that, use the tripod.
5. A good trick to learn is to space your breathing so that you click the shutter just as you have finished breathing in.
6. Check the flash synchronizer frequently to make certain it is in correct adjustment.
7. "Depth of field" is the term applied to the sharpness of your picture from front to back. Two factors determine depth of field, the distance of the camera from the subject and the opening of the lens. The farther away from the subject you stand and the smaller the lens aperture, the greater the depth of field. Learn how to use this characteristic of photography. It is very valuable in getting sharp pictures or in eliminating undesirable backgrounds.
8. Be careful of the lighting. With very few exceptions, light should not be pointed in the direction of the camera.
9. If you have any doubts as to exposure, it is better to overexpose a picture than to underexpose.
10. A simple formula to follow when taking pictures with artificial lights (either flash or photoflood) is to use two lamps each at approximately a 45 degree angle from the subject with one lamp slightly higher and closer to the subject than the other.
11. When using flash lamps, the exposure is determined by the distance of the subject to the closest bulb. Exposure tables are available from the manufacturers and distributors. Follow their recommendations closely. Other determining factors in exposure are the lightness and darkness of the subject and reflecting background. A light background is particularly helpful in filling in the shadows and making a softer, more evenly exposed, negative.

## Suggested Subject Matter (Cont.)

### B. Some Hints on Taking Pictures of People.

1. When you are taking pictures -- take your time and relax your subject. Many times you can create a relaxed atmosphere by letting your subject help you choose the angle and suggest picture possibilities.
2. When taking portraits, give your subject something to do. Take his mind off the picture taking. Learn how to take pictures while you are talking.
3. When taking portraits, focus on the subject's eyes. Take the picture with the lens opened up to f5.6 or better, and use a shutter speed of 1/100 second or faster depending upon the amount of light being used. By opening up the lens, the background becomes fuzzy and will not compete for interest with the subject.
4. Don't place your lights too close to your subject unless you want harsh lighting with deep shadows for dramatic purposes.
5. If your subject wears glasses, be careful always to place your lights so that they will not be reflected off the glasses.
6. In taking group pictures always place the lights well above the heads of your subjects in order to eliminate the possibility of casting shadows on the back row.
7. Wherever possible, avoid retouching a portrait. If retouching is absolutely necessary, have it done by a professional, and then do the minimum.

## Topic IV. Taking Pictures in the Field.

### A. Some Further Hints on Taking General Pictures.

1. Train your eye to see pictures that will interest other people because they tell an interesting and human story. Unless a picture is "for the record," try to have people or at least an animal in every picture.
2. Choose very carefully the angle at which you are going to shoot the picture. The best background is simple and uncluttered. Don't hesitate to walk around your subject a few times in deciding on the best angle.
3. In photographing buildings or other tall objects, be careful to keep the camera level or else the buildings will seem to lean. Frequently the only way to do this is to get quite a distance from the subject, or even to take the picture from the window of a nearby building.



Suggested Subject Matter (Cont.)

4. When using a light meter, measure the light coming directly from the subject by holding the meter 6" to 12" from the subject. When taking pictures of landscapes measure the light reflected from your own hand.
5. The best lighting for taking color pictures is flat and even. Brilliant sunshine throws heavy shadows. Measure the light very carefully and follow the recommended exposure meticulously. Color film allows very little latitude in exposure and an underexposed or overexposed frame is practically useless.
6. Use a sunshade on the camera all the time.
7. When taking pictures in the inside of a farm building, double the normal exposure time if the walls are dark, or the ceiling very high.
8. A picture always seems to emphasize any dirt or clutter; so, when taking any pictures, be careful to tidy up.
9. If you are going to try to take "night" pictures, take them just about dusk when the buildings still have some light on them. Frequently it is necessary to turn the house lights off halfway through the exposure so that they won't overbalance the exposure of the building exteriors.
10. When taking pictures of the high-line, close the lens as far as practical so that as much as possible of the depth of the picture is sharp.
11. When taking pictures outdoors, use the medium yellow filter in order to get good clouds.

Topic V. Qualities Most Necessary in Pictures That Are to be Used in Publications.

A. Choice of Pictures.

1. The way a picture is going to reproduce when printed is determined by two factors:
  - a. The kind of printing used.
  - b. The kind of paper used.

### Suggest Subject Matter (Cont.)

2. Since most co-ops, State papers, and newspapers use offset or letter press printing on comparatively coarse paper, pictures will lose between 25% and 50% in contrast and detail when printed. Therefore:

- a. Choose pictures that are sharp and clear.
- b. Choose pictures in which the important detail is large enough so that if it should lose 50% in sharpness, it will still be recognizable.
- c. Choose pictures that have a good contrast of light and dark.

### B. How to Submit Pictures for Publications.

Editors are always looking for pictures. They want interesting pictures that are sharp and with enough contrast that they remain interesting when printed. On the physical side, the typical editor would prefer a glossy print which is large enough so that it will be reduced approximately 25 to 50% when reproduced. But in addition, he must have complete information on the picture subject. He wants names, dates, and above all, facts about the people. Facts that have human interest. Give an editor these and he will always come back for more.

## Topic VI. How to Prepare Pictures for Publications and Display.

### A. Hints on Preparing Pictures for Publication.

1. Choose only pictures that are interesting, sharp, and with good contrast.
2. In many instances a mediocre picture can be made into something quite good by using a small part of it -- the part that is the crux of the story. This is called CROPPING, and is just about the most important trick in using pictures for their greatest impact.
3. If a picture has a light background, or lots of sky, it will look much better on a printed page by putting a black rule around the entire picture.
4. When placing a picture on a page, always try to have the subject or action face into the page. This will lead your reader's eye into the text.



Suggested Subject Matter (Cont.)

5. Frequently, a picture that would otherwise be a perfect choice faces in the wrong direction. All you need do is indicate to the engraver to reverse the print. In the trade this is known as "flipping the negative."

Warning: If you do reverse a print make certain that there is no lettering since that will, of course, come out backwards, or that the subject will not be shown in an unnatural position. (For example, a right-handed person will appear to be writing with the left hand.)

6. When cropping a picture that has action in it, allow a bit more space on the side toward which the action is pointing than on the other sides. This eliminates the feeling of cramping the action.
7. It is better to use one large or medium sized picture than two small pictures.
8. Many pictures can be helped greatly by very minor retouching: removing white or black spots or lint marks, or by strengthening up a line. A very small jar of "retouching" black and white and a fine pointed sable brush is all that's needed. But never do more than an absolute minimum of retouching, and if it is a portrait, give it to a professional to do.
9. Do not write on the back of any print especially if it is a glossy.
10. Use glossy prints whenever possible. They reproduce with more contrast and detail.
11. If you want to mark up a print for the engraver or for some other reason, always use a Grease Pencil. The markings can be easily rubbed off or removed with carbon tetrachloride so that the picture can be used again.
12. Many pictures can be improved greatly by cutting them away from the background. This is called "silhouetting" and is quite easy to do. Simply paint around the subject with white paint. If reproduction is letter-press, a 1/4" band of white is sufficient -- but if reproduction is by offset, the entire background must be removed.

B. Hints on Preparing Pictures for Display.

1. Use only interesting, sharp, clear pictures.

### Suggested Subject Matter (Cont.)

2. The size of the pictures used depends entirely upon how far away the audience will be when looking at them. Generally, the smallest practical size is 5" x 7" (and that size can be used only when the subject matter is extremely simple and easy to see).
3. Trim the margins off the pictures.
4. Show pictures only against a simple background. A dark background is preferred for light pictures and vice versa.
5. If the only way you have to attach the pictures to the background is with tacks, use mapping pins in a bright color and set them at least 1/4" in from the edges of the prints.
6. Do not place pictures too close together, especially if they illustrate action. It is better to display a few pictures and display them well so that your audience will see them easily and not be confused.

### Topic VII. Slides and Slide Projectors.

#### A. Some Hints on the Use of Slides and Slide Projectors.

1. Clean all glass slides before showing. In cleaning Kodachromes use only recommended cleaners.
2. Before showing slides, arrange them in a container in the order of showing. Place them all alike -- upside down and backwards, so that they are in position ready to be placed in the slide carriage.
3. Check position of condensers before each use of projector. They are set loosely into position and are easily dislodged.
4. Clean condensers and projection lens on the projector frequently. Condenser lenses have a tendency to cloud up when subjected to sudden changes of temperature.
5. Always carry a spare projection bulb along with the projector.
6. Even though the projector has a fan circulating air through the machine, do not keep any slide in showing position more than two minutes. Kodachromes are particularly sensitive to heat and will dry out and change color when subjected to overheating.
7. Store all slides in a slide container in a cool, dry space.



Suggested Subject Matter (Cont.)

B. Equipment Needed for Showing 35 mm Black and White or Color Slides:

1. Projector with these characteristics:
  - a. At least a 300-watt lamp (if slides are to be projected more than 50', a 750-watt or 1,000-watt lamp will be needed.)
  - b. A forced air ventilating system.
  - c. A simple and easily operated mechanism for feeding BOTH 2 x 2 slides (either cardboard or glass mount), or single-frame or double-frame film strips.
  - d. A 5", f2.5 lens (if slides are to be projected more than 50', a 7 1/2" lens will be needed.)
2. Carrying case for projector.
3. Beaded projection screen on tripod. (If audiences larger than 25 are anticipated, a 6' x 6' screen will be needed.)
4. Storage file case for slides and/or strips.

Topic VIII. Motion Pictures

A. The Camera.

Most cooperatives will find a 16 mm camera to be most practical for their uses. Educational and trade films are 16 mm-sound, and it will be possible to show both these and co-op-made film on the same projector. In addition, the 16 mm size is best for showing to the average sized co-op audience.

Desirable Features.

1. Lens to be 1", f1.9, color corrected and coated.
2. Shutter speeds: single frame, 8, 16, and 24 frames.
3. Shutter designed so that it will not operate when spring tension is low.
4. Magazine load film since this type of camera allows operator to change film at will (from black and white to color, etc.). This type of film is higher in cost than the regular spool film; however, the extra conveniences will be found to be quite valuable.

Suggested Subject Matter (Cont.)

5. An eye-level optical view finder.

B. Motion Picture Projector.

Desirable Features.

1. A 2", fl.6 lens, coated and color corrected.
2. A 750-watt projection lamp.
3. A 15-watt amplifier.
4. Rewind mechanism.

C. Motion Picture Accessories.

1. Beaded screen 6' x 6'.
2. Fireproof storage cabinet for film (if motion pictures are being taken by co-op.)
3. Titler.
4. Editing and splicing outfit.
5. Light meter (photo-electric cell type).
6. Tripod...must be extremely sturdy. A panning and tilting head will also be necessary.
7. Filters...The most practical filter is type made of solid glass with a metal rim. These are the most frequently needed filters:  
  
MEDIUM YELLOW (for pleasing skies), RED (for dramatic clouds and silhouettes), KODACHROME HAZE FILTER (for use when taking landscapes on Kodachrome film).
8. Light unit - should consist of a sturdy stand with two 12" light reflectors on ball sockets. (The reflectors should be capable of accommodating #2 photoflood lamps.) Two extension cords (minimum length of 50').

D. Some Hints on Taking Movies.

1. In motion picture work, the most important element to remember is that what you get on the film is exactly what you will be showing. There will be no chance to crop out the background or focus attention



Suggested Subject Matter (Cont.)

on the subject. All you can do with a piece of film that isn't just right is throw it away. Therefore, COMPOSE THE PICTURE CAREFULLY BEFORE TAKING. This is the first essential to getting good movies.

2. Know your equipment, what it can do, and what it can't do. Get to learn how to operate the camera instinctively.
3. Hold the camera still when taking pictures. Remember the actors are supposed to move -- not the camera.
4. Use a tripod as much as possible; it is surprising how much sharper the pictures will be.
5. When panning (moving the camera from side to side) move very slowly. Move so slowly that you almost seem to be standing still.
6. Limit every scene to no more than 5 or 10 seconds duration. Change camera position after every scene either by getting closer or farther away, but change it. Don't operate the camera while changing position.
7. If you are taking pictures of a process where the audience must see every action, still change the position of the camera every 5 or 10 seconds to a long shot or extreme close-up. It probably will be necessary to have the actors repeat the action to do this.
8. After the films have been developed, edit them mercilessly. Cut out every single inch of unnecessary footage. Don't allow a single badly exposed or badly focused frame to remain in the picture. People are not interested in what might have been.
9. Title all pictures. Whatever titling method is used, titles must be simple and easy to read. Keep titles short enough so that they can be read in 5 to 10 seconds. If more time is needed, break up the titles with a few seconds of pictures.
10. Use only fresh film, and develop as soon as possible after exposure.

E. Some Hints on Showing Pictures.

1. Store film in fireproof containers in a cool, dry place.

Suggested Subject Matter (Cont.)

2. In warm climate, it will be necessary to place a small moistened sponge in each can of film. This will eliminate the possibility of the film's drying out and cracking.
3. After each showing, clean the film carefully. There are many excellent preparations on the market for this purpose.
4. Before each showing, check the projector carefully. Make certain the exciter lamp and light bulb are working. Clean the lens. Always carry a spare light bulb and exciter lamp with the projector.
5. Be careful to keep the beaded projection screen clean. Do not, under any circumstances, fold the screen. Always ROLL the screen up immediately after use.

Topic IX. A Workable Photographic Filing System.

- A. The only way you will really make use of all the photographs you have available is to devise as simple a filing system as possible which will still allow you to find the picture you need at any time quickly and easily. This system is basically the one used by a great many photographers who do not have a tremendous number of prints to keep track of:
  1. Number negatives consecutively in chronological order. Store negatives in negative envelopes (this is vital) in consecutive order.
  2. Keep a book (looseleaf) with each negative listed chronologically and described briefly.
  3. Set up a subject matter file of prints from your negatives. Each print should be numbered identically with the negative it was made from.
- B. This basic system can be enlarged if needed so that the subject matter file is separate from the print storage file. But this is not necessary unless there are a great many pictures in the file.
- C. An important feature of any file, in addition to convenience, is the safe storage of the negatives and pictures available.



Suggested Subject Matter (Cont.)

D. Just for a start, this is a suggestion for the subject matter breakdown of a photographic file:

1. Farm uses of electricity.
2. Household use of electricity.
3. Commercial use of electricity.
4. Community use of electricity.
5. Pre-electrification.
6. Co-op personnel.
7. Distribution system and plant facilities.
8. Line construction and maintenance.
9. Cooperative educational activities.

Some Published Material on Photography

Elementary Photography - Neblette, Brehm, Priest.  
Little Technical Library on Photography - Ziff-Davis Publishing Co.,  
Chicago.  
Picture Taking Outdoors - Eastman Kodak Co.  
Taking Motion Pictures - Eastman Kodak Co.  
Graphic & Graphlex - Morgan & Lester  
Camera (Magazine)  
Popular Photography (Magazine)  
U. S. Camera (Magazine)  
REA Motion Picture List (includes Department of Agriculture film  
catalog).





